

The Mining Journal

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LONDON, MARCH 11, 1955

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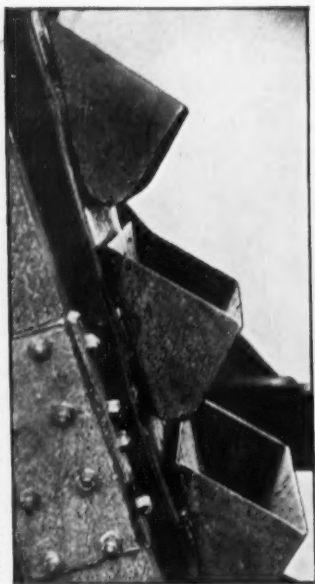
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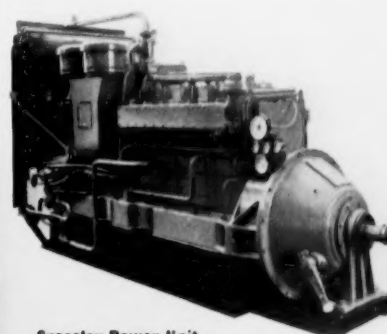
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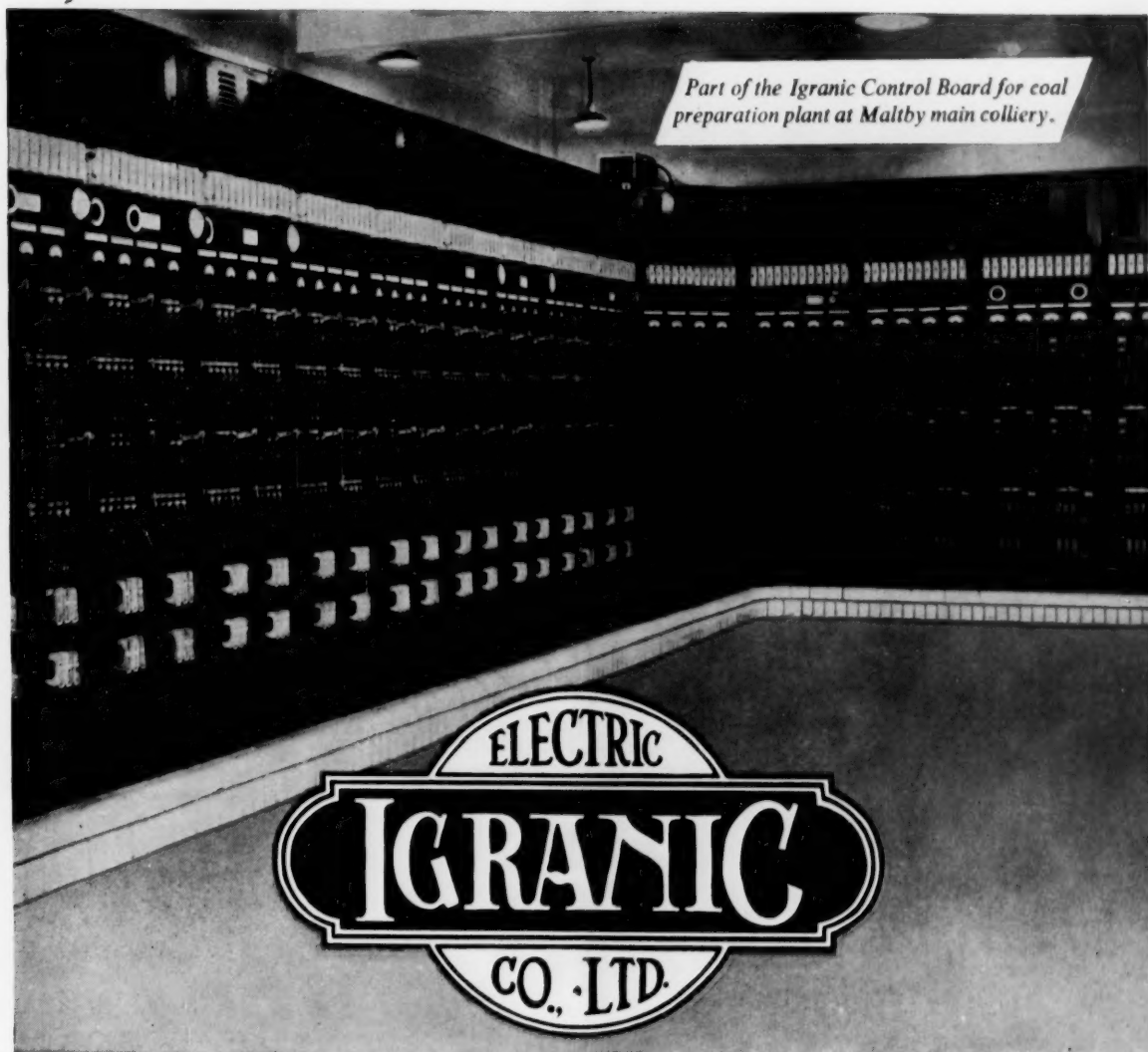
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NOTES AND COMMENTS

Formosa Over South-East Asia

The general improvement discernible in the economies of nearly all South-East Asian countries in 1954 was due largely to the fact that their adjustment to the collapse of the Korean war boom had been completed and they were, therefore, in a position to take advantage of the steady markets for most of the area's primary products. Mr. V. A. Grantham, in saying this in his annual statement accompanying the full report of the Chartered Bank of India, Australia and China, adds that economic prospects during the current year do not appear unfavourable.

Generally speaking, the chief difficulty standing in the way of a solidly based expansion is the lack of capital funds necessary to implement development schemes designed to broaden the basis of the Asian economies. And as a corollary, there is an urgent need for the strengthening of financial mechanisms for providing that each country's economic resources are used to the best advantage. This latter problem has a particular application in India, to overcome which the Government has accepted in principle the need to establish a State Bank of India with a nationwide network of branches which will have the twofold advantage of providing better rural credit facilities and also the easier collection of rural savings.

Yet it is in Mr. Grantham's brief but penetrating analysis of the present situation prevailing in Pakistan which most clearly indicates the problems confronting most of the South-East Asian countries. More than 80 per cent of Pakistan's foreign exchange earnings are derived from two commodities, jute and cotton. Thus, when the volume of cotton exports contracted it meant that the country's new industries were cut off from the full supplies of spare parts and raw materials essential to the fulfilment of the country's plans for industrial expansion. This situation was resolved only by an appreciable increase in U.S. economic aid. Pakistan has no coal deposits and the Chartered Bank of India, Australia and China, with five other Eastern exchange banks, has now joined with the World Bank in granting a loan to the Sui Gas Transmission Company for the utilization of natural gas. This transaction is particularly notable in that it is the first World Bank loan in which the British exchange banks have participated.

Mr. Grantham is not, however, unmindful of the importance of placing the broad economic picture within the appropriate political framework. The most significant, if most menacing, development during 1954, he declares, has been the shifting of the centre of gravity in world affairs from the Elbe to the Formosa Straits. But nevertheless, it has brought home to all those engaged in the affairs of South-East Asia that there can be no enduring progress until the antithesis in world politics has been moderated.

Tanganyika's Progress in 1954

An early review of the mining industry in Tanganyika during last year is again available from the Acting Commissioner for Mines and bears date Dar es Salaam, February 1, 1955. There was no notable expansion of private prospecting operations in the territory during the year, but steady development towards continued production was maintained at several of the larger mines, and with an increased output of diamonds the value of Tanganyika's mineral production throughout 1954 reached a new record of approximately £5,000,000. Although finalized figures for the complete year are not available, minerals exported as distinct from minerals produced, are expected to have achieved a value of about £4,500,000.

The territory's increased output of diamonds was the most salient feature of the year, standing at a provisional 329,947 ct. valued at £3,128,765, a considerable increase over the 1953 output of 170,509 ct. valued at £1,765,518. At Mwadui Mine, of Williamson Diamonds Ltd., a large new dragline excavator was erected, while at the close of the year the plant for handling and treating the greatly increased tonnage was nearing the final stages of completion. At approximately 318,000 ct. diamond output from Mwadui was double that of the previous year, but because of the improved recovery of small stones the average value per carat fell somewhat. At the neighbouring diamond mine of Alamasi Ltd. production continued but on a somewhat reduced level.

The 72,212 f.oz. of gold produced was slightly greater in weight than the 1953 output of 69,886 f.oz., although value last year was provisionally estimated to be £901,227, excluding that gold contained in lead concentrates, and was thus slightly lower owing to the disappearance of the

gold premium. Tangold Ltd., a partnership of New Consolidated Gold Fields Ltd. and the Colonial Development Corporation, combined shaft sinking and development operations at Kiabakari.

In so far as the base metals are concerned, exports of lead concentrates by Uruwira Minerals Ltd. from the pilot mill at Mpanda Mine were restricted by the preparation of the mine to provide the increased tonnages to be treated by the new mill. This mill is almost completed and will have a crushing capacity of 1,300 tons per day. Exports of concentrates from the pilot plant fell from 6,174 tonnes in 1953 to 4,694 tonnes last year at a provisional value of £359,427.

Production levels of tin and tungsten concentrates fell from those of the previous year, though there are signs that the future will show improvement. Output of tin concentrates last year was provisionally 54 tons, valued at £27,322, against 62 tons, valued at £34,994 in 1953, while tungsten concentrates at a provisional 12 tons, valued at £7,751, showed a decrease against the 1953 figure of 31 tons to value £25,767. With the price of tin at over £700 per ton for the greater part of the year, the Colonial Development Corporation began an expansion of their productive operations which had been reduced when the price of the metal declined in 1953, and thus the expansion of the Kyerwa Syndicate Ltd. was delayed. The successful operation of the new International Tin Agreement to stabilize the tin price within limits would be of great benefit to the Tanganyika tinfield, as the future of this area appears to depend upon long-term development.

During the year, interest in mica slackened but there were appreciable increases in exports of gypsum, lime and salt. About 500 tons of coal were produced and sold locally from a claim in the Rungwe district, while prospecting activities for various minerals were intensified. In December last year, as a culmination to prospecting work done under the oil exploration licence granted jointly in 1952 to the D'Arcy Exploration Co. Ltd. and the Shell Overseas Exploration Co. Ltd., the first deep test well for oil was spudded in on Mafia Island, a report of which was published in *The Mining Journal* of January 21, 1955.

Springboard to Canadian Industrial Expansion

Production of petroleum and natural gas in Canada has come to be recognized as the springboard to industrial expansion of particularly impressive proportions. A survey of the areas under exploration and development suggests prospective growth of at least ten per cent annually in the output of petroleum for the next decade. Whereas production at present is slightly in excess of 300,000 bbl. a year, the survey points to probabilities of output rising to around 700,000 bbl. a year ten years from now. Remembering what the rising petroleum industry contributed to the industrial growth of the United States during the past quarter century and longer, Canadians in general as well as foreign investors have grown optimistic over what they see in store in Canada as a result of the growing petroleum production of the country.

Expenditures in Canada during 1954 for petroleum and natural gas facilities reached \$350,000,000, a gain of 24 per cent when compared with the preceding year. Before the end of this year work is to begin on a new 2200-mile all-Canadian pipeline to bring natural gas from Alberta to Canada's industrial east at an estimated cost of \$300,000,000. Already a pipeline 1772 miles long is carrying petroleum from the Alberta oilfields to Sarnia in Ontario. Added to this is a pipeline of 747 miles running from Edmonton, Alberta, to Vancouver in British Columbia, involving construction costs of close to \$100,000,000. Another pipeline is to be laid this year at a cost of \$20,000,000 to carry liquid

propane from the prairie oilfields and refineries to Winnipeg, Manitoba.

Yet these installations are looked upon as only a beginning. Already a project is under discussion which offers promise in due time of the construction of an all-Canadian trans-Canada pipeline which would link Montreal with the growing flow of petroleum from the prairie provinces of the west.

Australia

(From Our Own Correspondent)

Melbourne, February 25.

The large uranium occurrence, known as Mary Kathleen, in the Mount Isa-Cloncurry district of North Queensland, is being intensively drilled. So far, four lodes have been intersected by slightly depressed diamond drill bores, the greatest width so far being 194 ft.; assay value over this width was 0.33 per cent uranium oxide. Other holes are in progress, No. 1 bore intersected a total of 303 ft. of uranium-bearing lode, and over this total distance the rare earth content was 26.3 per cent, of which 20.4 per cent is cerium-lanthanum group. Values in two adjacent boreholes are similar.

FAVOURABLE OUTLOOK FOR TIN INDUSTRY

There is promise of improvement in Australian tin over the next two years. The dredge of Tableland Tin Dredging N.L., at Mount Garnet, Queensland, which has a capacity of 300,000 cu. yd. per month, is digging towards the main lead, and when this is reached returns are expected to improve. In the meantime, the plant is in low grade ground, as it has been for the past four months. For the four weeks ended February 1, throughput was 152,436 cu. yd. and recovery was 32.5 tons of tin oxide. When working on the old area, from which the dredge has been moved, production was as high as 60 tons of tin oxide per month, and when full throughput and normal grade ground are reached, comparable output is expected.

It has been anticipated that a changeover to hydro-electric power from the Tully Falls scheme would be made towards the end of this year, but the Queensland Government has advised that power from this source will not be available until the end of 1956, so in the interim, costs will be adversely affected. Ravenshoe Tin Dredging Co. has an area of comparable size to Tableland Tin, or about 50,000,000 cu. yd. with a grade over 0.5 lb. tin oxide per cu. yd. A bucket dredge of about 300,000 cu. yd. per month capacity is in course of erection, but because of the adverse advice regarding power from the Tully Falls scheme, construction work is being suspended. Electric power is now necessary for pumping to fill the dry dock in which the dredge has been built, and delivery was expected in the mid-year. This delay will seriously retard the rise in tin production, for dredge output was expected to approximate 50 tons of tin oxide per month. Production has decreased somewhat by the closing down of the Cock's Eldorado dredge in Victoria.

Aberfoyle Tin, a large lode mine in Tasmania, has reported disappointing results from development at the lower levels, but as ore reserves will last for about five years, there is no ground for immediate pessimism. In Western Australia, a company with a capital of £A2,000,000 is about to commence alluvial tin mining on the Shaw River, near Marble Bar, and a company is also reported to be interested in the old Moolyella tinfield, 20 miles east of Marble Bar. There is doubt as to whether the narrow leads will, collectively, give sufficient ground for company work, and an ample water supply is a prominent problem.

Development of the Algoma Basin Uranium Project

In 1947, when the Baruch Plan for the world control of raw materials and finished products was deemed unacceptable by the United Nations, the secrecy which had controlled the exploitation of Canadian uranium deposits previously, was removed. Accordingly, the financial support and necessary development techniques became available to find and develop new uranium deposits in Canada. Since that time a new and potentially important source of uranium has been found in the Algoma Basin, usually referred to as Blind River. The discovery can be directly attributed to the foresight of the geologist, Franc Joubin, and his associates. The present position is that Algom-Preston, Pronto-Peach, and other companies under the management of Technical Mine Consultants, own 1,400 claims and that two large tonnage properties will be brought into production simultaneously. The following article is condensed from *The Algoma Story*, by Leslie Roberts, and describes the discovery of uranium in the Algoma Basin and the subsequent development of the area.

The first post-war uranium mine to come into production by private enterprise in Canada was Rix-Athabasca, and prior to the discovery of the Algoma Basin it was believed that any subsequent discoveries of uranium in the Dominion would be restricted to a line approximately 300 miles in length and running immediately north of Lake Athabasca to the vicinity of the original Eldorado mine at Great Bear. Yet Joubin and his associates displayed interest in the country north of Lake Huron, and by mid-1954, when the first production agreement with the Canadian Government was concluded, this group had discovered and developed several vast uranium orebodies and, in terms of tonnage, had established three of the largest mines in the world devoted primarily to the production of uranium.

This new belt, the Algoma Basin, traversed two mining districts between Sudbury and Sault Ste. Marie, and proven ore was assessed in tens of millions of tons. The discovery assured the Western Hemisphere of atomic energy throughout the foreseeable future.

INITIAL PROSPECTING

Early in 1952 Joubin received initial financial backing by the Hirshhorn Group and on May 18 of that year the first 36 claims in the district were recorded. The Peach Company was formed with 100,000 shares to finance their exploration.

This initial examination of the Algoma conglomerates provided an interesting paradox for, despite the radioactivity revealed from outcrops examined by geiger counter, surface samples returned negative assays. This was due to the oxidation of the pyritic outcrops leaching the uranium content at the surface, and consequently a further \$30,000 was subscribed to provide for systematic exploratory drilling.

Drilling operations began on April 6, 1953, and in May every core assayed was reported to contain uranium ore. Furthermore, these diamond drilling operations revealed that the initial line of strike encompassed the Peach claims, and that the strike line was only a part of a huge Z-shaped formation which stretched throughout the hinterland north of Lake Huron. More than that, it was believed that the northern curve would be found some 30 miles north of Quirke Lake, with the centre passing between Elliott and Nordic lakes.

This "hunch" proved to be remarkably accurate as it turned out, and it was decided to stake claims on the Z-shaped configuration throughout its "swings" wherever radioactive conglomerates were found. The necessary financial backing was supplied by the Preston East Dome Company in association with Technical Mine Consultants for the Hirshhorn Group.

A staking crew was assembled and 60 mining licences were purchased in varying parts of Ontario in order to

avoid attention. Solicitors were included in the staking crews in order to draft the requisite papers of transfer.

On July 9, 1953, the staking operation was completed with 90 miles of the strike recorded as radioactive. On July 11, mining recorders in various parts of Ontario booked more than 1,400 claims totalling 56,000 acres. Some 200 claims had been registered earlier and some weeks later an additional 8,000 claims were staked by other parties.

FINAL DEVELOPMENTS

Pronto Uranium Mines was formed in July, 1953, to develop the Peach South Belt discovery. The Peach Company controlled Pronto through its ownership of 1,500,000 shares received in consideration for the property and for the work completed to prove production potential. Similarly, Preston East Dome sponsored Algom, a 6,000,000 share company incorporated later in the year to develop the deposits of Quirke Lake on the North Belt and Elliott-Nordic on the Middle Belt.

In effect, the 1,400 claims were divided roughly into three portions. Over 600 belonged to Algom-Preston, over 250 to Pronto-Peach, while the remainder were divided among the many companies under the financial sponsorship of the Hirshhorn Group and the management of Technical Mine Consultants. All claims were disposed of at cost of staking.

In so far as the physical development of these mines is concerned, the Peach properties of Pronto Uranium have proved ore reserves valued at over \$70,000,000 at September 1, 1954, and the reserves proved are steadily increasing. The production target aims at an initial milling rate of 1,000 tons per day in September of this year with a final objective of 1,500 tons per day. The Algom property is scheduled to begin production in 1956 with two mills at Quirke and Nordic lakes.

The Quirke Lake property of Algom, situated on the North Belt, is on an orebody exceeding 7,000 ft. in continuous length and is known to persist on dip in excess of 3,400 ft. At September 1 last year, the presence of more than 7,000,000 tons of radioactive conglomerates had been established between the surface and the 1,200 ft. horizon.

The same company's Nordic property, located in the eastern corner of the 12-mile line originally named the Elliott Lake Group, is of similar value to that at Quirke Lake. Here, more than 6,000,000 tons of ore had been proved on September 1 last year. The lie was above 1,200 ft. over a continuous length of 6,000 ft. Not included in ore estimates were the implications of an exploratory drill hole sunk to 2,000 ft. vertical depth and a length on dip in excess of 6,000 ft. which was still proved to be in ore. At the present stage of development Algom's two properties under development have a value in excess of \$300,000,000.

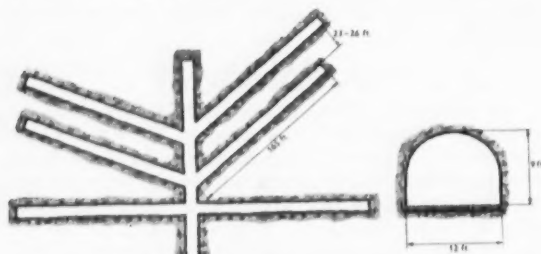
The tentative production date for the Quirke Lake workings is mid-1956 at a milling rate of 3,000 tons a day.

Testing Sandvik Coromant Drill Steels in the Bodas Mine, Sweden

By E. HJELMQUIST and G. KARLSTROM

In 1944 the Sandvik Steel Works Company, Sweden, introduced tungsten carbide tipped drill steels in that country, and in conjunction with the Atlas Diesel Company inaugurated the Swedish method of rock drilling which utilizes light, high-speed machines with air leg support. An integral factor in the method is the carbide tipped drill rod and an important link in the work of furthering the qualitative development of Sandvik Coromant drill steels is the systematic testing which takes place at the Sandvik Steel Works Company's mine at Bodas, southwest of Sandviken. These experiments have been carried out since 1942 and have gradually increased in step with the growth in drill steel production. In the Bodas mine the drill steels are subjected to the various tests which form part of the research work for the continuous improvement and development of the steels and a section of the overall capacity of the testing laboratory is, of course, also used for the development of drilling and grinding techniques. The authors of the following article, which describes the testing and recording methods used at Bodas, are on the staff of the Sandvik Steel Works Company.

The testing of drill steels for research purposes is carried on in a special drilling laboratory arranged on the 525 ft. level of the Bodas mine. This laboratory consists of special drifts made in granitic leptite rock, which is suitable for drill steel testing operations.



Special drifts on the 525 ft. level constitute the drilling laboratory

When determining the testing methods, due allowance is made—as is the case in all experimental work—for variations in the results. The factors which mainly affect these results are variations in the formation and type of rock, in drilling technique, the quality of the tungsten carbide insert and drill rod, and in the design of the drill steel. The results are, of course, also influenced by air and water pressures, and the rock drill used. In order to obtain the most reliable results possible, testing on a fairly large scale is therefore necessary, and most of the factors mentioned have to be kept as constant as possible. By the availability of suitable rock and mechanical equipment, accuracy can be combined with rapidity in the Bodas mine.

TESTING EQUIPMENT

For the laboratorial testing of the Sandvik Coromant drill steels, Atlas rock drills BBD 41 WK with pneumatic pushers are used at present, whereas for special testing of, for instance, bit ends, slip-on bits, etc., Atlas rock drills RH-656-W are used. Atlas rock drills BBC 41 are used for testing Sandvik Coromant extension steels. In the latter case chain feeds are employed as a rule.

The compressed air is obtained from the air storage chamber of the mine. By means of a special reducing system and by air vessels in the testing laboratory, the air pressure can be varied from 0 to 10 kg/cm² as required. The flushing water is also taken from the mine's own supply system and water pressure can be varied from 0 to 13 kg/cm². Normally, the test steels used are 7/8 in. hexagon steels, 5 ft. 3 in. and 10 ft. 6 in. in length with bit radii 1 1/2 in. and 1 7/16 in. respectively. These large bit diameters have been chosen because both the tungsten carbide insert and the drill rod are subjected to very heavy stresses.

The main purpose of the drilling tests is to establish the operating life of the steel and tungsten carbide, and the various factors which affect the process and result when drilling with Sandvik Coromant steels. The qualitative testing which dominates in this case can mainly be subdivided as:

- (a) Testing of tungsten carbide bits with regard to quality;
- (b) Testing of drill rods with regard to quality;
- (c) Testing of extension steels with regard to design and quality;
- (d) Testing of bit ends with regard to design and quality;
- (e) Testing of machines.

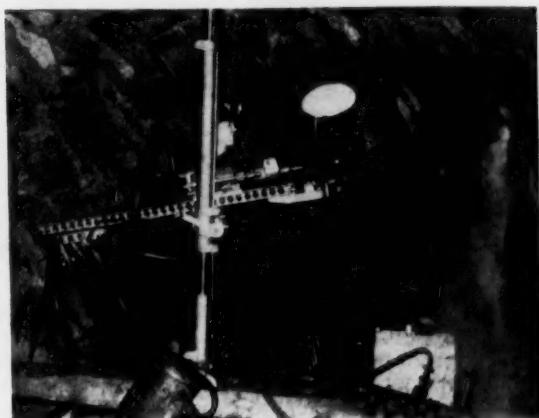
Drilling tests are planned at Sandviken by a special testing division, and reactions to the tests are obtained from the various research and development staffs. During the same tests, or series of tests, one or several types of steel with tungsten carbide inserts of varying quality, different grades of drill rods, etc., can be tested. As a rule, eight test steels of each type, 5 ft. 3 in. and/or 10 ft. 6 in. in length, are tested. All the test steels are made under minute control, so that in each particular case isolated type samples of the variety in question are obtained. This implies that in a test series all steels are of equal quality throughout, apart from the individual variety of the eight steels in each set.

TRIAL DRILLING

After the steels have been transported to the testing laboratory, the height and diameter of the bit are carefully



Atlas drill BBD 41 KW used for laboratory testing of drill steels



Atlas rock drill BBC 41 for testing extension steels

recorded and each steel is provided with a label which is secured to the shank of the steel. This label accompanies the steel during the whole drilling test. The steels are then distributed among one or several test drillers, so that each driller receives a certain number of steels of each variety in the series. To eliminate the variations in the type of rock, the condition of the machines and the skilfulness of the drillers, the drill steel sets are circulated among the different drillers and machines.

The holes are drilled in the drift walls in vertical rows and are numbered according to a special position system. The position number, the number of the driller, and the number of the machine are recorded on the label, and after completion of each hole the hole length and drilling rate are also recorded on the label. Before and after re-grinding the height of the insert and the diameter of the insert are recorded.

All testing of drill steels is kept in progress till breakage occurs of either the tungsten carbide insert or part of the drill rod. Every breakage is, of course, recorded on the label, after which the label and the steel are sent for a preliminary examination. All data recorded on the label is then entered in reports which are then sent to the testing section of Sandviken.

SIMPLIFIED RECORDING

To simplify the records made regarding the cause for the rejection of the steel, a special codification system has been prepared. The various damages which can occur in the insert and bit, i.e. types S, L, F, are supplemented by figures according to a specially detailed code consisting of a combination of letters and numbers.

Type of failure*

- S=insert failures
- L=brazing failures
- F=insert or brazing failures combined with steel cracks or broken wings
- U=insert worn out on height
- Ud=insert worn out on diameter
- N=steel failures close to the shank
- K=steel failures close to the insert

* Other kinds of failures as blocked centre hole, steel stuck or lost, are fully described.

Details of steel failures†

- i=starting from the centre hole due to fatigue
 - u=starting from a flat of the rod due to fatigue
 - h=starting from a corner of the rod due to fatigue
 - f=starting from a forging fin
 - x=the starting point cannot be found, for instance, if the fractured surface has been deformed
 - p=sudden breakage not due to fatigue
- † Other failures are described in full.

Capital letters show failure type and location. For insert failures and the number following, the capital letter is a

code number corresponding to a certain figure. For steel failures the numbers refer to the point of breakage measured in mm. from the shank end or from the base of the insert. The small letter which comes after the numbers refers to a description of details or kind of failures.

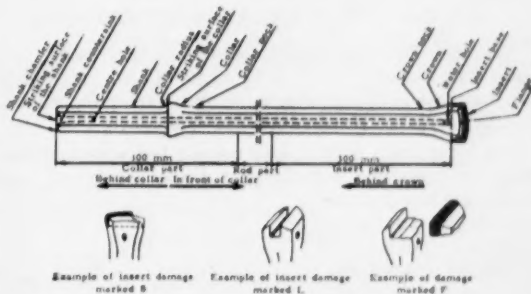
The tests have been planned so that modern estimation methods can be used when studying the results. A drilling test, for instance, can be planned in the following way:

Drill steels 1600 x 39 mm		
Tungsten Carbide Variety	Steel variety x	Steel variety y
A	Drill steels marked 1-8	Drill steels marked 9-16
B	Drill steels marked 17-24	Drill steels marked 25-32

With the guidance of the reports prepared in the Bodas laboratory, the results can then be easily compiled in a table similar to that used in the planning of test steels. As far as the meterage figures are concerned this table may then have the following appearance:

A (Drill steels 1600 x 39 mm.) (Meterage)		B (Drill steels 1600 x 39 mm.) (Meterage)	
x	y	x	y
115	131	101	106
163	162	131	179
141	125	75	120
173	178	175	95
157	78	98	96
98	114	107	13
156	147	34	136
129	183	154	89

At Sandviken these results are now analysed purely statistically by modern methods including, for instance, analysis of variance and regression. Each steel is not only



The Coding System

checked for durability but is thoroughly analysed in respect of height and gauge wear, drilling rate, damage frequency and the like.

PRINCIPLE OF TESTING

The leading principle in the testing of Sandvik Coromant drill steels has been to develop drilling methods which combine rapidity with reliability. These requirements have been met partly by basing the results on sufficient, but not too comprehensive, observation material, partly by eliminating outside varieties and partly by using modern methods for estimating the results. With the facilities available at the testing laboratory in the Bodas mine, where about 395,000 ft. (75 miles) are attained annually, there is a good guarantee of the testing of the Sandvik Coromant steels being so extensive that reliable results are actually obtained. These results will benefit production and clients.

It should be observed that the tests in the Bodas laboratory are, as a rule, supplemented by drilling tests at the client's venue of operations.

FIJI MINING—II

Prospects for Exploitation of Manganese Deposits in Fiji

The base metal deposits of Fiji currently offer a greater possible interest than the Colony's established gold mining industry, with manganese showing comparatively widespread occurrence. The following article, the concluding instalment of two, discusses the manganese deposits known to exist in Fiji, and ends with a brief resumé of other mineral deposits, notably the beach sands of Viti Levu. This island is potentially the main source of Fijian mineral wealth. The article is condensed from *Mining and Mineral Prospects of Fiji*, published by the Department of Lands, Mines and Survey of the Colony as Legislative Council Paper No. 49.

Although a gold mining industry is in active operation in Fiji and further possibilities exist in the field of gold prospecting, the deposits of copper, zinc and phosphate rock so far known in the Colony show a greater likely potential. In addition to these minerals, manganese and the possibility of occurrences of uranium appear to be of greater interest at the present time, although in these fields comparatively little systematic work has been accomplished in Fiji.

Present knowledge of manganese occurrences suggests that distribution of the deposits is somewhat irregular. The Nasaucoke is the most promising deposit opened up, whilst the Mago, Nubu and even the Gau deposits exhibit some potentially interesting features. It is considered that there are reasonable chances of more substantial deposits of manganese being located in the Fiji group through the employment of systematic modern prospecting techniques. In general, Fijian manganese shows no deleterious phosphorous content.

PRODUCING MANGANESE DEPOSITS

Amongst the manganese deposits which either are actively productive or offer possibilities of economic operation are those at Nasaucoke, Vunamoli, Tabuquto, Wauosi, Nubu, Koroviko, Natabuquto and Votualevu.

The Nasaucoke deposit was opened last year and currently is producing metallurgical grade manganese ore, despite the fact that the deposit was discovered many years ago but was considered worthless. The Nasaucoke deposit is in the Colo West province, Viti Levu.

A massive pyrolusite outcrop reaches a height of 60 ft. above an adjoining creek bed to an observed width of approximately 30 ft. Preliminary investigations have traced the manganese outcrop for some 150 ft. along the strike, but insufficient investigation as yet has been completed to allow for any accurate estimates of ore reserves. These reserves may be reduced by the possible existence of pockets of high iron or high silicious ores. On structural evidence, however, the orebody should be capable of

producing a minimum of 15,000 tons of manganese ore (pyrolusite) with a minimum manganese content of 48 per cent. Indeed, a typical assay of the ore shows percentage contents to be SiO_2 , 0.7; Fe_2O_3 , 0.1; Mn, 56.8 and P, 0.13.

Prospects are considered to be reasonably good, although some selective mining may become necessary owing to the silica and iron presence.

OUTPUT OF VITI LEVU

A second producing deposit is that at Nabu, on the western side of Viti Levu, which consists of a number of small manganese lenses embedded in a ferruginous clay. An estimated 2,300 tons of manganese ore has been produced from this area in the last three years, the average grade of ore being in excess of 50 per cent manganese content and having a low iron content. Production from this deposit is continuing. Ore reserves are unknown but are considered to be sufficient to maintain production for a number of years.

A further deposit, that at Votualevu on the western side of Viti Levu, was first opened up about five years ago. Production has been in excess of 2,000 tons of manganese ore assaying between 50 per cent and 53 per cent manganese, iron content being less than 4 per cent and silica content about 7 per cent. The ore occurs on the surface in the form of lenses separated by gangue material, the distance between lenses varying from a matter of inches to several feet. This deposit lends itself to exploitation by untrained labour, as at no point is the depth of the worked portions greater than 15 ft. A recent examination suggests the possibility that this deposit is turning to a solid lode formation some 15 ft. to 20 ft. below the surface.

KNOWN OCCURRENCES

At Vunamoli, in Nadroga Province, manganese is found in two separate deposits named Vunamoli 1 and Vunamoli 2. Both have been known to the natives for a considerable time but it was only last year that a local Fijian resident applied for a prospecting licence over the area on behalf of the population of Vunamoli village. Vunamoli 1 is within a few hundred



Viti Levu is the principal potential source of minerals in Fiji

yards of the village, and Vunamoli 2 is about 1-1½ miles distant. Both deposits are situated in small pockets of jungle within open grassland typical of the western side of Viti Levu.

A preliminary examination of these deposits suggests that Vunamoli is possessed of certain promising features. A number of outcrops have been examined and although the presence of silica considerably lowered the overall value of the manganese ore contained in some outcrops, other outcrops contained manganese ore of high quality. Thorough examination of the outcrops has not been possible owing to jungle growth, but the leasees are clearing the area and intend to have the area worked by a suitably qualified organization on a small royalty basis.

Vunamoli 1 is thought to be suitable for open cut exploitation and is considered capable of producing 48-55 per cent manganese ore (pyrolusite), whilst the more silicious ore would probably prove suitable for concentration. The deposit is considered as one of the more promising potential sources of manganese currently known in Fiji.

Vunamoli 2 is considerably smaller and is more silicious. This deposit warrants more detailed investigation before its potentialities can be properly assessed. It may be practicable to work both deposits simultaneously, the latter probably on a much smaller scale to supply lower grade ore to a concentrating plant.

OPTIMISTIC PROSPECTS

A further known occurrence of manganese, that at Tabuquto in the Ba Province of Viti Levu, has been the subject of very little examination although surface prospects suggest ore reserves of some 5,000 tons, with possible increases in reserves on further development. A typical analysis of Tabuquto ore shows a total manganese content ranging from 50.9 per cent to 58.8 per cent, iron oxide (Fe_2O_3) content from 1.2 per cent to 3.9 per cent, and silica (SiO_2) content from 2.4 to 8.0 per cent. This deposit is currently being opened up.

A small outcrop of manganese is located about one mile south of Wauosi village, Viti Levu. No work has been accomplished at this site, although workable deposits may be found below the surface. The average assay for total manganese from this area is 60 per cent, but no ore reserve figures can be estimated owing to the limited prospecting completed.

Although no mining has been done at the Koroviko prospect on the western flank of Viti Levu, large size manganese boulders cover an area approximately 450 ft. long by 200 ft. wide. The boulders sampled assay a manganese content of a minimum of 50 per cent with low contents of silica and iron. The deposit is being opened up.

A further deposit, at Natabuquto, has not been worked, but appears to be of a similar nature to the Koroviko occurrence.

There are a number of other manganese prospects on Viti Levu about which practically no information as to average grade of ore and ore reserves is available.

MANGANESE ON FURTHER ISLANDS

The only manganese deposit on the island of Vanua Levu which appears to be of interest on the information so far gained is that at Nubu in the northern district. Here, manganese formations in the form of psilomelane and at least 4 ft. wide have been examined by officers of the Department of Mines.

In the same areas large, high grade floaters have also been examined. There is a possibility that four outcrops

studied over a length of 1½ miles may represent part of a continuous formation, as these outcrops exhibit "reasonably good" alignment on a bearing of N. 70 deg. E. No work has been accomplished to confirm or deny this possibility, however, and the area therefore remains one of considerable interest. It is proposed by the Department of Mines that test work be carried out on this prospect during this year. Official assays of the samples taken of the Nubu deposit show manganese contents ranging from 34.2 per cent to 57.2 per cent, and iron (Fe_2O_3) contents from 1.5 per cent to 12.7 per cent.

A further deposit of manganese occurs on the island of Gau, in the Lomaiviti group. It appears that the Gau manganese occurs in the form of manganite in two volcanic agglomerate beds each approximately 4 ft. in thickness and separated by some 35 ft. of lava flows. One of the manganiferous beds has been traced along the beach for about 700 ft. and for the greater portion of its length is reported as lying horizontally.

An average ore sample from Gau Island assayed 19.1 per cent manganese dioxide. A further sample assayed 73.2 per cent manganese dioxide, but only a very limited quantity of this high grade ore would appear to be available. The ore apparently does not reveal the presence of phosphorus. This deposit is not being worked at present and considerably more exploratory work is necessary before the full possibilities of the occurrence may be assessed.

On the island of Mago, in the Lau group, the manganese deposits appear to be situated amongst limestone pinnacles and may be of sedimentary origin. The ore appears to be chiefly manganese dioxide.

The Mago deposits comprise two occurrences about 300 yd. apart. Surface samples average only 15 to 20 per cent for manganese, but samples taken at a depth of 25 ft. showed an increase of about 6 per cent over those samples taken at surface. Each deposit outcrops over a length of some 400 ft., with widths of from 60 ft. to 140 ft. in the case of one deposit and widths of about 80 ft. to 110 ft. in the case of the other. No statistics are available as to iron, silica or phosphorous impurities. The deposit is not at present being exploited.

Also in the Lau group, an outcrop of powdery manganese has been located on Moala Island, and isolated specimens of manganese have been found near Levuka village on Lakeba Island.

OTHER MINERAL PROSPECTS

Black sands have been located at a number of beaches around the island of Viti Levu, but little is known of their potential value, as on the whole the prospects have not been subjected to systematic examination.

One particular black sand deposit near the mouth of the Vuda river showed gold values in association and although the depth of concentration was only 3 ft. the extent was considerable, extending north for approximately a quarter of a mile from the river mouth and in addition being traced south of the river. Reasonable gold values were found in an area of about 250 yd. by 150 yd. dimensions. It is considered that the Vuda river deposit should be examined in more detail and that other black sand occurrences in Fiji warrant at least a preliminary examination. It is also thought that the ocean bed in the immediate vicinity of the Vuda river should be sampled.

Radioactive minerals have not been discovered in Fiji, nor has any prospecting been carried out for such minerals. There are several areas of potential interest on Viti Levu and further possible areas are likely to be found on other islands of the group, notably Vanua Levu.

Developments in the U.K. Coal Mining Industry

The following article maintains our practice of presenting briefly current developments taking place within the coal mining industry of the United Kingdom. Of particular interest is the fact that many of these developments are the result of the observations and experience of workers employed at collieries in this country.

The need for improving and simplifying the means of removing the fine shale which passes through the apertures of the bedplates of Baum washboxes is commonly acknowledged. Generally, one shaft serves the shale elevator and impeller or worm. Consequently, this shaft is long, often lacks a bearing between the elevator tail-drum and the worm, and the drive is dependent on the shale elevator chain. To overcome these weaknesses, a washerman at Bowhill Colliery, has now designed a lightweight device which is easily made and can be fitted without removing the shaft. The unit is a replacement for the worm.

The device consists of several pairs of mild steel plates about $\frac{1}{4}$ in. thick, each having blades formed in them by cutting with oxy-acetylene to the required profile and setting the blades to the desired angle. The plates are glanded or bolted to the shaft so that when grip occurs they will yield before the shaft or elevator chains are damaged.

An alternative proposal is that two or more pairs of unequal angles should be used, but in this case the blades are spot welded to the flange of the angle. The weld should be sufficiently strong to withstand ordinary wear and tear, but should yield under an abnormal load. An impeller of this design has been working successfully at Bowhill Colliery for about three years and has not needed repair.

CONVEYOR FOR MECHANIZED DRIFTING

To facilitate high speed drifting at Manvers Main colliery, No. 3 Area, N.E. Division of the N.C.B., a shuttle conveyor has been designed to operate as a transport link between the shovel loaders and a gate conveyor located a little distance outbye the face of the drift.

In double loader installation the shuttle conveyor is simply a fabricated steel channel framework fitted with cover plates to which are bolted gate type troughed idlers for carrying the belt. The return idlers are held by small brackets bolted to the underside of the main channels. The whole framework is mounted on wheels running on the centre track of the roadway so that it can be retracted from the face of the drift during shotfiring. The track gauge of 3 ft. 6 in. is sufficiently wide to permit the conveyor structure to pass over the tail of the gate conveyor.

A small haulage unit (taken from a coalcutter) is housed in the shuttle conveyor structure to advance and retract it by means of a rope. At the tail of the shuttle conveyor is fitted a double-edged plough 18 in. high which clears the track of any dirt lying in front of the structure as it is pulled forward.

Mounted on top of the shuttle conveyor and spanning it is the drilling carriage, mounting three drill booms. This

platform is mounted on wheels which run on rails fixed to the girder framework. The conveyor drivehead is situated at the forward end of the machine.

When a round of dirt has been cleared, and the face of the drift is ready for drilling, the hopper chutes are lifted clear of the retractable conveyor and the two loaders flitted back from the face of the drift, pushing the hoppers in front of them. The drilling carriage, which has been located on a ramp at the delivery end of the conveyor is now allowed to run inbye and is pushed to the tail end of the conveyor.

During the drilling period the three tracks are advanced and a plug is let into the floor of the drift. The drilling carriage is then withdrawn along the conveyor on to the ramp and the whole structure retracted to a safe distance before firing.

After the round has been fired the loaders move up to the rock pile, while the conveyor is pulled forward into the pile by its own haulage. As the shovels move forward so the conveyor also moves forward by means of its own haulage, until it reaches the plug in the floor. At this point it is in a position at which the shovels can load out the whole round. A drift 16 ft. x 10 ft. has been advanced at an average rate of 28 yd. per week with this equipment.

For use with a single Eimco 40 loader a shorter shuttle conveyor is employed, operating on the same principle but of slightly different construction. The rear of the conveyor framework in this case is elevated above floor level and fitted with a hopper to accept dirt from the loader conveyor on to which the shovel delivers its load.

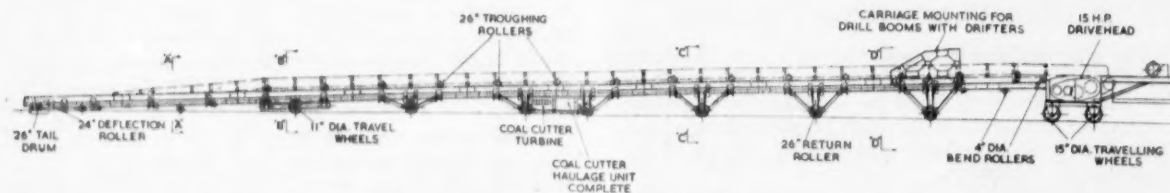
With such an arrangement a single track is employed in the centre of the drift to accommodate the loader and shuttle conveyor. No drill carriage is employed in this installation and boring is done by two Holman machines mounted on airlegs.

COAL WASHING IMPROVEMENT

A significant lengthening in the life of coal-washing chutes has been effected at White Hill Washing Plant, Co. Durham.

When new chutes were installed there recently, the United Arc Welding Co., in an effort to reduce corrosion and wear caused by the abrasive action of the coal, welded sheets of expanded metal to the chutes which were then rendered with quick-setting specially hardened cement.

This device has proved extremely effective and is claimed to be the most economical yet devised. The lining of expanded metal, made by the Expanded Metal Co. not only reinforces and anchors the concrete but provides an additional protection for the chutes.



General arrangement and construction at the shuttle conveyor at Manvers Main colliery.

TECHNICAL BRIEFS

Application of Semi-Solid Anti-Corrosive Compounds

A hot spray method for applying semi-solid anti-corrosive compounds has recently been developed by the recent co-operation between the Regent Oil Co. Ltd. and the Atlas Diesel Co. Ltd. The difficulties of effectively spraying such compounds are well-known and more often than not excessive quantities of thinners are required. Consequent evaporation after application may result in an inadequate coating, as well as contaminating the atmosphere with solvent vapours. The other and normal alternative is to apply the compound with a brush. This method is time consuming and often quantitatively wasteful as well as giving an uneven finish, and insufficient coverage in spots not easily accessible with a brush. The newly developed hot spray process is the result of experiments with the Regent Oil Co.'s Caltex Rustproof Compound L and the Atlas Diesel Co.'s KV3 cup heater and Ecco 306 spray gun. The compound, which contains 12 per cent volatile thinner, is heated in the cup heater to 140 deg. F.-160 deg. F.—melting point 120 deg. F.-125 deg. F. When the thinner has evaporated after application the melting point is 145 deg. F. It is sprayed at a pressure of 45 lb./sq. in. by the special internal mix Ecco 306 gun, which gives the required atomization. When the globules strike the surface being sprayed, they congeal immediately thus eliminating wasteful backspray, resulting in an even coating that covers effectively.

Compound L, a semi-solid, is a blend of mineral oils and petroleum jelly containing special additives, which give it non-drying, flexible and high adhesive qualities, thus providing a protective coating or film that does not harden or crack, that will withstand rough treatment and tropical or arctic temperatures. None of these qualities are lost by use of the hot spray method. An advantage of Compound L is that it can be sprayed on a surface that is not completely free of moisture. The film or coating absorbs any moisture and then expels it to the weather side where it is lost through evaporation.

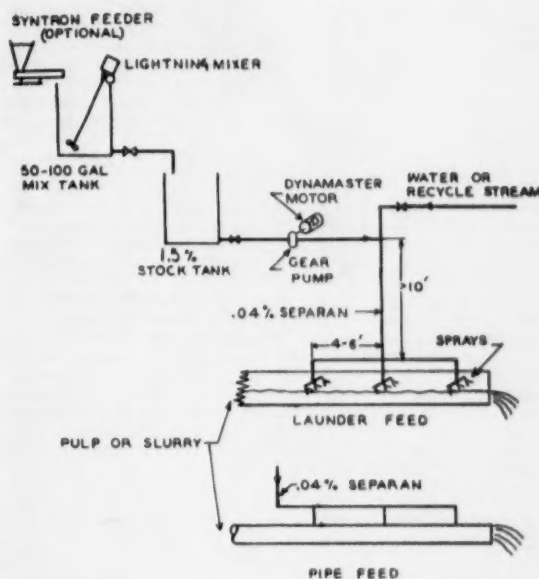
As considerable economies in both time and materials will be effected, and it appears that the method offers possibilities in the mining industry.

A Flocculating Agent for Commercial Application

Separan 2610 is the trade mark for a flocculating agent, formerly known as X-2610, developed by The Dow Chemical Co. This material has demonstrated considerable versatility in the laboratory as a coagulant or flocculant and this promise has been confirmed by commercial use. Separan 2610 increases the settling and filtration rate of dispersed materials in a wide variety of applications and has decreased filter cake moisture. The material is a synthetic organic water-soluble high-molecular weight polymer and was described briefly in our issue of January 7, 1955.

Further details, however, revealed that Separan 2610 is effective on most solids. Good flocculation of solids is readily obtained in solutions ranging from strong acid to strong base, regardless of salt content. The flocculant degrades in hot strong base; it is, however, quite useful when applied even under these conditions, although consumption rates may be slightly higher than in other media. The normal consumption for increasing settling rates ranges from .01 to .10 lb. per ton of solids. Larger amounts have not been found to cause re-dispersion. The normal consumption for increasing filtration rates ranges from .05 to .50 lb. per ton of solids. The exact reagent requirement depends on the character of the solids and must be determined for each individual application. In a representative settling operation, Separan 2610 at a concentration of 0.1 lb. per ton of dry solids increased the settling rate over 40 times. In actual practice, although the cost of this high performance was not prohibitive, the operation was better integrated with other portions of the process using a dosage of 0.04 lb. of Separan 2610 per ton of dry solids which resulted in a settling rate of 3-4 times the untreated settling rate.

The agent should be prepared as a 1 or 1.5 per cent solution in water prior to use and has a remarkable affinity for suspended solids as well as being strongly and rapidly adsorbed



The Separan Feed System

by them. It is important that the flocculent be distributed rapidly and uniformly in order to minimize reagent cost.

To flocculate pulps before settling or filtering, it is recommended that the 1.5 per cent solution of Separan 2610 be diluted to 0.1 to 0.4 per cent (1-4 grams/litre) solution prior to application. The optimum concentration of reagent depends to a large extent on the solids content of the pulp or slurry. The best way found to make the stock solution is to add the dry reagent to water while the latter is being well agitated, by a power mixer such as a portable propeller type. A 70-80 gal. lot at 1.5 per cent can be prepared in a 110 gal. drum using a $\frac{1}{2}$ h.p. mixer equipped with two 5 $\frac{1}{2}$ in. propellers. The reagent should be fed uniformly into the vertex in 30-50 sec. to avoid formation of difficult soluble balls or lumps. If the viscosity of the 1.5 per cent solution increases on standing it indicates make-up water of poor quality. The stock solution may be diluted by metering the 1.5 per cent solution into a tee in a pipe line carrying the diluent to the point of application. The metering device may be a bronze or stainless steel gear pump direct connected to a variable speed motor. Gear pumps of different sizes, alternatively coupled to a drive, produce a very wide variation in volume of reagent fed in a positive manner. Small gear pumps should be protected with an ample conical 16 mesh screen in the suction line.

Development of S.G. Iron

Cast iron is one of the most commonly used engineering materials, because it is easily and accurately cast into intricate forms and sizes, but until recently its sphere of useful application has been limited by inherent brittleness, which rendered it unsuitable for parts in which toughness as well as strength is indispensable.

The undesirable characteristic of brittleness has now been overcome by transforming the graphite content of the iron into spheroidal form, thus eliminating the weakening effect of the flakes. The change is effected by treatment of the molten iron with magnesium, by a process developed by The Mond Nickel Co. Ltd. and the International Nickel Co. Inc. The main features of this process, and the properties obtained in the spheroidal-graphite cast iron made by it, are the subject of a 16 mm. colour film *S.G. Iron: Cast Iron that Bends*. This has recently been prepared by The Mond Nickel Co., and is now available for loan to technical societies, colleges and schools.

METALS, MINERALS AND ALLOYS

COPPER.—Copper supplies in the United States continue to be as tight as ever and *Reuter* reports that dealers have been asking 41 c. per lb. for March deliveries. It is said that, for the 8,000 tons which B.D.S.A. has for disposal from Government inventories, applications totalling 35,000 tons have been received from about 40 consumers; since, it is added, about 90 consumers could reasonably stake a claim the ultimate tonnage requested may be absurdly high.

Probably most firms are making the most of their hardship claims and Bache and Co. have something to say on this in their recent letter. The letter denies the validity of the official January fabricators consumption figures of 136,539 tons and suggests that true consumption is only running at between 115,000 and 120,000 tons. For tax purposes, the letter explains, fabricators built up their stocks in December (when consumption was officially only 97,000 tons) and then drew on them in January; but consumption throughout remained fairly uniform. The letter chides the American industry for keeping the copper price "in a straight jacket" and argues that as long as world supplies are tight America will have difficulty in procuring imports when she is being outbid by European competitors. Meanwhile, with effect March 10, the Department of Commerce has added copper and copper base alloy wire and cable to the list of goods required in export licences for shipment to any country except Canada.

A cheerful piece of news is that the San Manuel property in Arizona may start producing earlier than expected. It is now thought that plant construction will be completed by the end of this year and capacity output of 70,000 tons of refined copper will be reached by the middle of 1956. The Government is committed to buying most of San Manuel's output for the first 5½ years. It is also understood, that, encouraged by world prices, miners in the San Luis Potosi area of Mexico filed over 30 new claims in February.

The best hope of a quick return to a balance in world demand and supply must lie in the recovery of Rhodesian output for although the mines were working at 70 per cent capacity when the strike ended, about 50,000 tons were lost in the course of it. The outlook has been obscured by the reception given by the European Union to the offer of the Chamber of Mines to take back the African strikers on their old terms. A meeting of about 500 European miners at Nchanga has passed a resolution demanding that the ballot of Europeans which recently approved the principle of African advancement should be set aside and a fresh one held. The Chamber has replied with a statement to the effect that to do other than it did "would have constituted mass victimization and would have been morally indefensible and against the weight of public opinion throughout the world." Probably, wiser heads in the European Union will prevail. For the European Union to link up African advancement with the recent strike or to put themselves in a position of demanding victimization for members of another union would lose them the last trace of sympathy from the world trade union movement; while to set aside the results of a ballot so recently held would make their claims to moral leadership in the industry seem rather hollow.

Meanwhile, Kennecott's mine and smelter in New Mexico was closed on March 8 by a union grievance strike but the trouble was quickly settled. A more serious threat has arisen at Chuquicamata where the unions have demanded higher wages from March 26 and have suspended overtime working pending a new agreement. This is something which will be watched with real concern. Any interruption of Chilean supplies now would throw world markets into serious distress, although with prices running high the Chilean Government can be relied on to try to ward off the strike. It may be bad luck but the plain truth is that since the industry started to run its "there's plenty of copper" promotion campaign there has been a continuous squeeze in varying degree; the industry cannot afford this state of affairs to continue if copper is to have a reliable future.

LEAD.—Lead has been a steady and moderately active market in New York at 15 c. per lb. during the past week, although no consumer section has shown outstanding interest. Stocks of refined lead in smelters' and refiners' hands stood at 69,980 tons against 77,930 tons a month earlier; this is the lowest total since January 1, 1954. Similarly, smelters' receipts of lead in ore and scrap fell in January to 43,778 tons against 50,123 tons in December; the figure was slightly higher than the 42,673 for January, 1954. The decline was caused primarily by a falling off in imports of lead. Little is now heard of the talk, widespread a few weeks ago, of the possibility of an advance in the price.

General services administration has entered the market for its usual supply of lead.

TIN.—Tin has continued to be a featureless market with moderate interest and a restricted amount of dealing in New York. Nevertheless, tinplate production continues at a high level in America as elsewhere. There is a good domestic demand for electrolytic with most mills sold two months ahead; there is much less demand for hot-dipped but a strong European interest in this type is making good the deficiency. How long these cheerful conditions will persist is uncertain; this is the peak of seasonal output in preparation for canning spring and summer crops while many consumers are stocking up against a possible strike in the steel industry. About 70 per cent of 1955's requirements, it is expected, will have been produced in the first part of the year.

Another doubt must be the continuance of exports to the United Kingdom. Licenses for the import of 50,000 tons of American tinplate have been issued by the U.K. Board of Trade, but it now appears this is unlikely to suffice in its purpose of helping U.K. producers to keep their export connections. At the same time, the U.K. will have spent \$11,000,000 on the tinplate and, in the present economic difficulties may, perhaps, scarcely afford to pay more without complete assurance that none of the tinplate is serving the domestic market.

Against these facts may be set the plans of Weirton Steel which already has the world's biggest tin mill and which is now engaged on a big expansion programme. Furthermore, Mr. MacIntosh, of the Tin Research Institute, Ohio, has recently forecast an annual increase of American tin consumption of 10 per cent in the next three or four years and has said that there is a gradual return of confidence in tin supplies in the United States.

With the time for a decision on the Texas City Smelter's future approaching the combatants are taking up their positions. The Senate Armed Services and Banking and Currency Combined Committee will shortly be lodging a report on the matter, while Congressman Mulnor has introduced a Bill for an investigation into the need or otherwise of a smelter. There will be many more such moves in the near future.

A new cassiterite deposit has been found at Campilla de la Jara, near Toledo, and it is now being explored. Tin content is about 700 grms. per kilo of cassiterite according to a Spanish report.

Deutsche-Suedamerikanische Bank has negotiated a \$3,000,000 credit with Banco Central de Bolivia. Of the goods covered, 20 per cent represents mining machinery, and 30 per cent industrial machinery and transport equipment. The goods must be bought from Germany.

ZINC.—Demand for Prime Western in the United States at 11.50 c. per lb. East S. Louis continues to be patchy; some quite keen buying was mingled, last week, with a moderately steady demand. Nothing, however, in the nature of consumer buying has suggested that any change in price is called for. Demand for Special High Grade, at 13 c., shows no signs of falling away and an extremely tight supply situation has developed; indeed there have been reports of American smelters rejecting enquiries from abroad for the high grades, in sharp contrast to the abundance of foreign offerings last year.

Deliveries of galvanized sheets during January reached 211,101 tons, the highest figure since last July. Smelters' slab zinc stocks have continued to fall. At the end of February they were 96,156 tons, the lowest figure since June, 1953. Zinc deliveries in February at 99,964 tons were the highest since the end of the Korean war; 80,016 tons were on domestic account, 3,743 export and 16,205 for the Government. Unspecified orders at the end of February were 54,527 tons, a decline of 3,000 tons. Zinc smelters' output for the month was 78,940 tons.

Representatives of the lead and zinc mining industry have been giving evidence before the Senate Finance Committee, which is now studying the Trade Agreements Act, passed by the House of Representatives. Mr. Otto Herres has called for an excise tax of 3 c. per lb. whenever imports cause market prices to fall below levels sufficient to maintain an "adequate mobilization base." Mr. Herres would presumably consider these circumstances already existing. General Services Administration has entered the market for zinc.

LITHIUM.—The Quebec Lithium Corporation is proceeding with the construction of a mill with a capacity of 1,000 tons a day to produce lithium concentrates. The mill, which will be located at Barrauto, in Quebec Province, is scheduled to

begin operating next November. Reserves are estimated at some 15,000,000 tons.

NICKEL.—The recent decline in the value of the Canadian dollar has resulted in a slight rise in the Canadian domestic nickel price by 1.1 c. to 62½ c. per lb. This increase will apply only to Canadian consumers who only represent about 3 per cent of Canada's nickel output.

QUICKSILVER.—Some answer to the question of where quicksilver production has been going is provided in the Bureau of Mines figures for 1954 which have just been published.

U.S. production last year (including secondary metal) totalled 24,600 flasks (76 lb.). Imports amounted to 65,316 flasks and exports to 890 flasks. There was thus a net total available of 89,026 flasks against a consumption of 41,300 flasks. Although the U.S. Bureau of Mines' report does not specifically say so, it is implied that the balance of 47,726 was in the main absorbed by Government stockpile buying.

A somewhat similar pattern was noticeable in the figures for 1953 when production and imports, less exports, provided an available total of 102,375 flasks against a consumption of 52,259, leaving 50,116 presumably taken up by the stockpile. In fact, it is probable that the stockpile offtake has been somewhat larger than these figures suggest as producers, consumers and dealers of stocks have together declined during the past two years from about 40,000 flasks early in 1953 to a little over 22,000 at the end of 1954.

An analysis of the U.S. import figures quarter by quarter reflects clearly enough the increasing squeeze to which the market was subjected during the year forcing the price up to record heights. Thus, imports in the first quarter amounted to 23,400 flasks, in the second 20,700, in the third 17,300 and in the fourth to no more than 3,950.

It may perhaps be significant that imports both from Spain and Italy declined very sharply in the fourth quarter. The two countries together providing 1,600 flasks against over 14,000 in the previous quarter. Having regard to the extremely tight position which prevailed in the States during the latter part of the year it is difficult to believe that this decline in imports was due to any reluctance to buy at reasonable prices, and the explanation must doubtless be sought in the producing countries.

TUNGSTEN.—As in January, the South Korean Government has again accepted the Wah Chang bid for the whole of the 250 tons of tungsten ore on offer at the February auctions. The March auction is now in progress with 300 tons on offer.

News comes from Paris of the formation of a new company to be known as the Société Commerciale de Minerais de Tungstène et de Ferro Tungstène. This company will replace the State-sponsored import and distribution agency which was recently wound up. It is understood that six of France's leading producers of tungsten and ferro tungsten have combined to form this new ore purchasing company which is to have a capital of Frs. 5,000,000.

URANIUM.—Uranium deposits have been found in the jungle of Central Malaya in what may prove to be workable quantities about ten miles from Frasers Hill.

It is understood that the U.S. Atomic Energy Commission has been having preliminary talks with the Chilean Government regarding the possibility of exploring and developing Chilean uranium deposits.

Following the discovery of low grade uranium deposits in Madras, Bihar and Orissa the Indian Government is setting up a plant for the treatment of these ores at Takshilla in Bihar.

The London Metal Market

(From Our Metal Exchange Correspondent)

Metal markets have followed most other commodity markets during the past week in becoming very quiet and price changes with the exception of Copper have been negligible.

The Tin market has been helped by expert prediction of increased consumption in the U.S.A. combined with a more optimistic view of the rate of consumption throughout the world in the next few months. There is nothing further about the Tin Agreement but it is now believed that most countries will have carried through the necessary ratification to enable commencement of the Scheme soon after Easter. The contango has tended to narrow following an increased interest in cash metal possibly for shipment to America. On Thursday morning the Eastern price was equivalent to £72½ per ton c.i.f. Europe.

Lead has been absolutely featureless but Zinc has been a little more active and the undertone has become firm again owing to the latest stock figures from America which show that

at the end of February smelters were holding the lowest tonnage since June, 1953, and that this reduction was caused mainly by increased deliveries to consumers although the Government stockpile did absorb during February rather more than its usual monthly intake.

Most of the activity in the Copper market can be traced to buying from Western Europe where consumers still appear to be having difficulty in squaring up their position in view of the U.S. export ban and further buying from this direction cannot be ruled out now that the quotas for the export of scrap for the second quarter are known. As was to be expected with a rising market the backwardation has again tended to increase in spite of an appreciable increase in the tonnage shown in official warehouses at the end of last week. Once more there is a rumour of a strike at the Chuquicamata Mine in Chile and this has also had its effect on sentiment; it is sincerely hoped that no further interruption in production of Copper will take place as for the next few weeks the situation is going to be very delicately poised.

Closing prices and turnovers are given in the following table:

	March 3		March 10	
	Buyers	Sellers	Buyers	Sellers
Tin				
Cash	£708	£709	£711	£712
Three months	£713	£714	£715	£715½
Settlement	£709			£712
Week's turnover	710 tons		1,025 tons	
Lead				
Current half month	£103	£103½	£103½	£104
Three months	£102½	£102½	£102½	£103
Week's turnover	1,225 tons		1,425 tons	
Zinc				
Current half month	£87½	£87½	£88	£88½
Three months	£87	£87½	£87	£87½
Week's turnover	4 100 tons		4,250 tons	
Copper				
Cash	£340½	£341½	£340	£341
Three months	£328	£329	£327½	£328
Settlement	£341½			£341
Week's turnover	6,225 tons		4,775 tons	

OTHER LONDON PRICES — MARCH 10

ANTIMONY

English (99%) delivered,	
10 cwt. and over	£210 per ton
Crude (70%)	£200 per ton
Ore (60% basis)	22s./24s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade)	£519 per ton
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OTHER METALS

Aluminium, 99.5%, £163 per ton	Osmium, £30 oz. nom.
Bismuth	Palladium, £6 5s./£6 15s. oz.
(min. 2 cwt. lots) 16s. lb.	Platinum, £27/£27 15s.
Cadmium (Empire), nominal	Rhodium, £41
Chromium, 6s. 5d./7s. lb.	Ruthenium, £16 oz.
Cobalt, 21s. lb.	Quicksilver, £109 10s.
Gold, 251s. 3d.	ex-warehouse
Iridium, £30/£32 oz. nom.	Selenium, 43s. nom.
Magnesium, 2s. 4d. lb.	per lb.
Manganese Metal (96%-98%)	Silver, 74½d. f.o.z. spot and
£225/£262	74½d. f.d
Osmidium, £40 oz. nom.	Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC

Bismuth	40% 6s. 3d. lb. c.i.f.
	30% 5s. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semi-	
friable) 48%	£12 12s. 6d. per ton c.i.f.
" Refractory 45%	£12 5s. 0d. per ton c.i.f.
" Smalls 42%	£8 17s. 6d. per ton c.i.f.
Baluchistan Metallurgical	£13 5s. per ton c.i.f.
Magnesite, ground calcined	£26-£27 d/d
Magnesite, Raw	£10-£11 d/d
Molybdenite (85% basis)	105s. 3d.-108s. 1d. per unit
	c.i.f.
Wolfram and Scheelite (65%)	242s. 6d./250s.
Tungsten Metal Powder	
(98% Min. W.)	21s. nom. per lb. (home)
Ferro-tungsten	18s. nom. per lb. (home)
Carbide, 4-cwt. lots	£37 6s. 3d. d/d per ton
Ferro-manganese, home	£54 15s. 0d. per ton
Manganese Ore Indian c.i.f.	
Europe (46%-48%)	66d./68d. per unit nom.
Brass Wire	3s. 2½d. per lb. basis
Brass Tubes, solid drawn	2s. 7d. per lb. basis

COMPANY NEWS AND VIEWS

Rho-Anglo and Rhokana Maintain Interims

Interim dividends in respect of Rhodesian Anglo American and Rhokana Corporation for their years ending June 30, 1955, are to be maintained at the previous year's levels.

In the case of Rhodesian Anglo American an interim of 2s. 4.8d. per 10s. unit of stock, less Federal Income Tax at 6s. 3d. in the £1 and Northern Rhodesia Territorial Surcharge at 1s. 3d. in the £1, has been declared. This payment is equivalent to a net dividend of 1s. 6d. per stock unit and remains unchanged from the previous year's interim distribution. In respect of the year ended June 30, 1954, the interim was followed by a net final of 6s. per unit. Rhodesian Anglo American 10s. stock units now stand at around 96s. at which price the yield is over 7½ per cent.

The Rhokana Corporation has declared an interim dividend on the ordinary and "A" stock of 16s. per £1 unit. As for Rho-Anglo, this figure becomes subject to Federal Income Tax at 6s. 3d. in the £1 and Northern Rhodesia Territorial Surcharge at 1s. 3d. in the £1. The interim distribution is, therefore, equivalent to a net dividend of 10s. per stock unit or the same as for the preceding year in respect of which a net final of £2 was also paid.

At their present price of about £35 12s. the £1 ordinary stock units of Rhokana Corporation return about seven per cent. Sir Ernest Oppenheimer is chairman of both companies.

Rand Selection's Higher Profits and Dividend

Favourable conditions of share markets during the year ended September 30, 1954, largely accounted for the big improvement in profits earned by Rand Selection Corporation. Revenue from farms, interest and other sources, also showed a considerable increase over the previous year's figure.

Year to Sept. 30	Total Revenue £	Tax- ation £	Net Profit £	Divi- dends £	To Reserve £	Carry Forward £
1954	1,696,374*	288,118	1,186,868†	818,547	100,000‡	546,208
1953	899,010	40,208	663,795	687,597	650,000	433,437

* Including sharedealing profits £819,053.

† Excluding Cr. £195,398 from provisions written back and Dr. £350,948 representing property written down and minority interests written back.

‡ For prospecting and exploration.

A dividend of 45 per cent was paid on the issued ordinary capital of £1,818,993 in shares of 5s. This compares with the previous year's distribution of 40 per cent.

The market value of the company's quoted investments which are comprised primarily of Anglo American Group gold mining interests in the Transvaal and O.F.S., was £11,333,905 as compared with a balance sheet value of £6,223,464. At their present price of around £2 the 5s. ordinary shares of Rand Selection yield nearly 5½ per cent. Mr. A. Wilson is chairman. Meeting, Johannesburg, March 23.

African and European Maintains Dividend on Higher Earnings

A dividend of 25 per cent has again been declared by the African and European Investment Company on its issued ordinary capital of £1,300,000 in ordinary stock units of 10s. This is the same payment as that for the previous year.

Subject to audit, the profit for the year rose to £888,189 from £724,194 previously. These figures were struck after providing for taxation of £9,111 and £126,000 respectively. Appropriations from the year's profits in respect of expenditure on mineral rights written off amounted to £724 (£11,764) while £250,000 (£300,000) was placed to reserve. During the year, however, a sum of £450,000 was transferred from general reserve to write down certain quoted and unquoted securities. In consequence, this reserve now stands at £315,000 as compared with £3,350,000 previously. Mr. R. B. Hagart is chairman.

Rhodesia Broken Hill's Profits Increased

As a result of reincorporation in Northern Rhodesia on May 11, 1954, the Rhodesia Broken Hill Development Company obtained the option to deduct Rhodesian tax from its dividends. This option has accordingly been exercised. And with the recommendation of a final dividend at the gross amount of 1s. 4d. per 5s. unit of stock, after the deduction of Rhodesian taxes

amounting to Federal Income Tax at 6s. 3d. in the £1 and Northern Rhodesia Territorial Surcharge at 1s. 3d. in the £1, a net amount of 10d. per unit of stock remains. This figure is comparable with the final dividend of 7½d. paid in respect of the year ended December 31, 1953.

Year to Dec. 31	Total Profit £	Tax- ation £	Net Profit £	Dividend Distribution s. d.*	To Reserve £
1954	1,476,883	452,000	1,024,883	1 3	812,500
1953	1,249,752	381,856	876,896	1 0	650,000

* Net amount per unit of stock.

Rhodesia Broken Hill 5s. stock units now stand at around 13s. at which price a yield of about 7½ per cent is obtainable. Sir Ernest Oppenheimer is chairman.

South African Townships Earns More — Pays Same

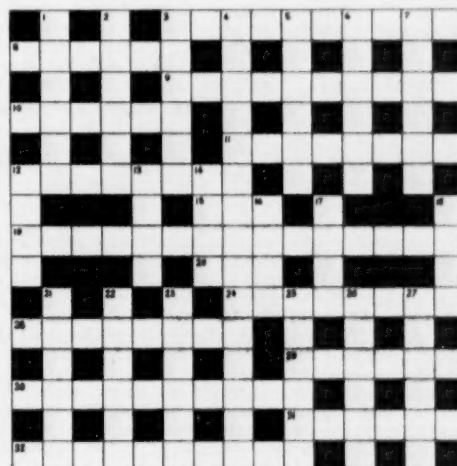
Profits from sharedealing during the year ended September 30, 1954, hoisted total revenue earned by South African Townships Mining and Finance Corporation to £438,209 from the previous total of £114,742. The opportunity was accordingly taken of producing the company's loan from Rand Selection Corporation and of generally stabilizing the finances of the company.

Year to Sept. 30	Total Revenue Investmt. £	Sharedeal* g* £	Tax- ation £	Net Profit £	Divi- dends £	Carry Forward £
1954	31,374	406,835	81,118	315,633†	60,000	110,764
1953	38,141	76,601	2,208	69,433	60,000	117,688

* Including £12,945 miscellaneous profits from property sales etc. (1953 - £8,369)

† Excluding Cr. £46,000 from provisions written back and Dr. £308,557 in respect of property written down.

Dividends on the issued ordinary capital of £2,400,000 in



'UNICONE' CROSSWORD No. 3

ACROSS.—3. Fantasies for opium eaters (4, 6). 8. The pilgrim's pace (6). 9. This is beyond all bounds (10). 10. The pachyderm's propeller ? (6). 11. Lenin and Stalin were (8). 12. A quaint old spouter (8). 15. Please put it in the trays provided (3). 19. You will pay according to this (5, 10). 20. So you know the knight (3). 24. Some pay according to these (8). 28. Think deeply here (6). 29. Is it what 19 is meant to do ? (8). 30. It sounds a stern and forbidding headland (10). 31. Whose are the unredeemed pledges ? (6). 32. Scrip sense is necessary for the royal heirs (10).

DOWN.—1. One of a bunch (6). 2. Having great resources (6). 3. Tolerably good looking (6). 4. Definitely not one step forward and

two back (15). 5. Lower the seabed (6). 6. The limitation of inheritance (6). 7. It usually means digging deep (6). 12. Something for nothing (4). 13. Single (4). 14. — and so is she (4). 16. Two of these to signify assent (4). 17. So this will get you pickled (4). 18. Miss this regrets (4). 21. Don't rush at it (6). 22. A favourite but not nonpareil (6). 23. Mrs. who was opinionated about wheat (6). 25. Monkey about with the rushes (6). 26. Untouched (6). 27. Something to hit (6).

Solution on page 276



With the compliments of

THE 'UNICONE' CO. LTD., RUTHERGLEN, GLASGOW, SCOTLAND
MAKERS OF UNICONE FLEXIBLE JOINTS FOR ALL PIPELINES

shares of 10s. were maintained at 2½ per cent or the same level as for the preceding year.

The corporation's shareholding, which are concerned with mining ventures of the Anglo American Group, contain a substantial proportion of the new O.F.S. mines. Quoted securities shown on the balance sheet at a value of £1,983,897 were worth £6,798,110 taking market prices as at September 30, 1954. This figure compares with only £3,222,810 at the end of the preceding year. Mr. A. Wilson is chairman. Meeting, Johannesburg, March 23.

Falcon's Increased Profits

Although a larger tonnage of better grade ore was crushed by Falcon Mines, the Southern Rhodesian gold producer, during the year ended September 30, 1954, which substantially raised working profits above those of the previous year, the addition of profits amounting to £21,417 from the retreatment of stockpiled concentrates was mainly responsible for the sharp gain in total revenue earned.

Year to Sept. 30	Tons Milled (000)	Per Ton Milled Grade (dwt.)	Yield (oz.)	Cost* (s. d.)	Devt. Fige. (000)	Ore† Reserves (000)
1954	159.9	7.08	24,651	27 5	6.3	548.5
1953	142.0	2.47	17,535	27 2	7.6	565.6

* Includes development costs 1954—3s. (1953—3s. 10d.)
† Value 4.2 dwt. over 112 in. (1953—4.5 dwt. over 116 in.)

In addition to the figures given in the above table, which concern only the company's main Dalny Mine, tonnage milled by both Sunace and Bay Horse Mines showed an improvement over that of the previous year. Despite this extra throughput, however, both mines' working profits fell. In the case of Sunace this was due mainly to a decline in grade to 4.48 dwt. per ton from 5.09 dwt, which more than halved working profits at £10,625 (£24,811), while at Bay Horse, the lower working profits of £3,262 (£7,783) were attributable to higher costs. The Falcon Mine remained on tribute during the year.

Year to Sept. 30	Total Revenue £	Tax-ation £	Net Profit £	Divi- dend £	To Reserve £	Carry Forward £
1954	127,049*	Nil	116,963	45,390	75,000	19,408
1953	72,700	Nil	62,769	50,000	50,000	22,835

* Including net revenue of £21,417 from re-treatment of 2,820 tons of concentrate produced and stockpiled prior to September 30.

A dividend of 10 per cent (nil) was paid on the issued ordinary capital of £453,903 in shares of 5s.

One of the most important factors affecting the trading prospects of the current year concerns profits which will be made from the retreatment of stockpiled concentrates amounting to 6,085 tons having an average value of 21.2 dwt. per ton. Figures in respect of the first four months of the current financial year show that a proportion of these concentrates have already been treated for a profit of £17,000. Moreover, as the company was able to handle 2,820 tons of concentrates during the period May-September of the past financial year, it would appear that this remaining tonnage could be dealt with by September 30, 1955. If this were to be the case, it would not be too optimistic to hope for an addition of something like £40,000 to current profits. In this event—on the assumption that the extra profits will not be placed to reserve—there is scope for a substantial increase in distribution. At their present price of around 7s. 9d. Falcon 5s. shares return about 6½ per cent. This is a low yield for a Southern Rhodesian gold share and no doubt discounts a higher dividend. Other figures in respect of the first four months of the current financial year show that 68,900 tons of ore have been milled and 12,539 oz. of gold recovered. Profits earned amounted to £48,400. Mr. E. B. Papenfus is chairman. Meeting, Bulawayo, Southern Rhodesia, March 29.

Benguela's Increased Activity and Receipts

In a preliminary traffic statement for the year ended December 31, 1954, it is disclosed that the number of kilometres run by the Benguela Railway Company increased to 5,235,000 from 4,721,103 previously. The number of passengers carried rose to 792,239 from 788,075 while the tonnage of goods handled (excluding service traffic) amounted to 1,124,679 as against 941,598 previously. Total revenue advanced to Esc. 361,647,805 from Esc. 320,824,761 in the preceding twelve months. After working expenses in Africa at the lower figure of Esc. 199,084,190 as compared with Esc. 206,881,426, net operating receipts rose sharply to Esc. 162,563,615 from Esc. 113,943,335.

RAND AND O.F.S. GOLD RETURNS FOR FEBRUARY

Company	February, 1955			Current Financial Year			Last Financial Year		
	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)
Gold Fields									
Doornfontein	48	17,996	82.1	398	136,145	671.5	179	51,931	158.5
Libanon	98	20,587	53.8	779	163,628	418.4	695	141,976	363.7
Luipaards Vlei	96	19,166	34.8	837	67,932	338.0	846	156,848	324.5
Rietfontein	26	5,854	20.2	52	11,878	40.8	54	11,974	46.6
Robinson	88	18,496	27.7	185	38,672	58.6	186	39,141	39.3
Simmer & Jack	115	19,260	15.8	235	39,302	25.6	250	40,075	27.7
Sub Nigel	64	20,800	86.4	529	173,821	747.1	530	175,585	803.6
Venterspost	103	25,332	62.8	841	207,708	502.4	842	197,709	456.7
Vlakfontein	38	13,984	71.6	77	24,258	146.3	75	26,718	142.1
Vogels	102	26,265	110.0	205	52,919	223.5	201	50,804	213.0
West Drie	62	47,201	371.0	438	332,793	2578.7	358	261,290	2108.9
Anglo American									
Brakpan	100	17,201	11.2	209	35,570	27.2	216	37,821	34.3
Daggas	215	49,370	302.6	436	99,758	614.2	417	97,555	594.2
East Daggas	92	15,368	45.4	186	31,147	93.4	185	31,471	93.3
President Brand	38	26,232	194.0	76	51,636	379.3	—	—	—
President Steyn	62	20,347	84.0	124	40,528	167.9	—	—	—
S.A. Lands	92	17,371	55.6	189	35,402	112.4	193	35,540	101.7
Springs	115	15,551	7.3	232	31,705	15.3	257	36,144	17.0
Welkom	73	15,364	7.4	149	31,255	19.7	118	24,032	8.3
Western Hlgs.	58	22,779	125.5	116	45,717	150.6	95	29,369	90.1
West. Reef Ex.	115	21,433	52.5	233	43,476	108.5	217	43,281	128.2
Central Mining									
Blyvoor	94	54,425	411.9	817	471,890	3615.9	778	458,989	3720.7
City Deep	151	28,805	6.1	317	59,498	14.6	315	60,902	38.3
Cons. M.R.	152	22,567	15.7	1,379	199,498	217.2	1,311	184,580	156.9
Crown	265	43,445	45.5	558	90,613	95.5	509	83,072	93.5
D. Roodepoort	160	27,272	39.4	338	56,861	90.1	335	54,916	89.6
East Rand Prop.	194	46,163	140.2	406	95,175	285.3	364	83,534	222.6
Harmony	43	15,555	53.1	254	90,870	276.8	—	—	—
Modder B.	53	5,358	1.0	107	10,881	2.1	111	11,332	5.6
Modder East	115	12,893	14.5	972	110,112	120.1	900	103,135	108.6
Rose Deep	57	9,027	6.8	119	18,944	16.3	128	19,849	23.0
Weigedacht	32	3,598	8.1	266	30,905	11.8	268	32,743	21.0
J.C.I.*									
E. Champ d'Or	19	1,298	15.8	38	2,886	11.3	44	4,569	22.9
Freddies Cons.	87	12,682	144.8	179	35,866	90.6	123	20,442	46.1
Govt. G.M.A.	238	32,093	139.1	498	66,254	78.2	490	63,421	60.0
Randfontein	233	28,264	187.3	519	58,833	172.3	517	78,229	50.8
Union									
East Geduld	136	41,824	314.9	282	86,724	653.3	248	76,573	554.6
Geduld Prop.	92	15,566	43.0	190	32,149	88.2	173	28,119	46.7
Grootevlei	175	37,892	210.4	360	77,666	434.1	337	72,023	397.5
Marievale	66	17,097	81.8	148	35,422	169.1	122	30,973	131.7
St. Helena	100	24,503	106.9	202	39,184	210.5	150	32,724	98.6
Van Dyk	76	12,701	1.6	155	25,866	3.2	152	26,548	5.7
General Mining									
Ellaton	29	8,886	45.8	59	18,519	98.6	49	9,885	14.7
S. Roodepoort	26	5,581	18.8	219	47,298	161.0	211	47,556	161.1
Stifffontein	82	32,193	204.2	164	64,576	412.5	148	46,275	242.4
W. Rand Cons.	216	25,308	200.2	455	52,557	425.2	447	54,508	327.9
Anglo-Transvaal									
N. Klerksdorp	11	1,312	2.2	22	2,729	3.2	20	2,808	2.8
Rand Leases	180	29,881	44.9	1,467	245,025	368.2	2,170	218,449	121.0
Village M.R.	34	5,073	9.3	275	41,282	80.9	273	—	96.1
Virginia O.F.S.	46	9,292	10.5	254	47,953	46.4	—	—	—
Others									
N. Kleinfontein	96	11,651	2.0	204	24,555	7.0	206	26,208	36.1
Nigel Gold	22	3,448	0.6	46	7,043	4.3	57	8,900	3.5

Notes.—Profit figures are in all cases figures of working profit, excluding profit from sale of gold at premium prices. In cases of groups marked with an asterisk (*) profit includes sundry revenue. Profit figures preceded by L indicate loss.
§ Gold and Pyrite
† Gold and uranium
‡ Excluding £235,000 from uranium
• Excluding 28,000 tons from Bird Reef

MAGNETIC ORE SEPARATOR WANTED for separation of Wolfram/Tin and similar ores, with minimum capacity of 1 ton in 8 hrs. Maxworth Metal Products Ltd., Norton Canes, Cannock, Staffs.

CORRECT SOLUTION to "UNICONE" CROSSWORD No. 3 APPEARING ON PAGE 275

ACROSS.—3. Pipe dreams; 8. Canter; 9. Exorbitant; 10. Mahout; 11. Russians; 12. Gargoyle; 15. Ash; 19. Final Assessment; 20. Sir; 24. Verdicts; 28. Cogitate; 29. Extort; 30. Strictness; 31. Uncles; 32. Princesses.

DOWN.—1. Banana; 2. Strong; 3. Pretty; 4. Progressiveness; 5. Debase; 6. Entail; 7. Mining; 12. Gift; 13. Only; 14. Lass; 16. Here; 17. Used; 18. Otis; 21. Loiter; 22. Minion; 23. Battle; 25. Rhesus; 26. Intact; 27. Target.

THE CHARTERED BANK OF INDIA, AUSTRALIA AND CHINA

BETTER ECONOMIC OUTLOOK IN THE EAST

MR. V. A. GRANTHAM'S SURVEY

The 101st ordinary general meeting of The Chartered Bank of India, Australia and China will be held on March 30, in London.

The following is an extract from the statement by the Chairman, Mr. V. A. Grantham, circulated with the report and accounts for the year 1954:

Last year, when I addressed you, it appeared that the painful readjustment imposed on most Eastern economies by the collapse of the Korean war boom had, on the whole, been completed and that the future could be regarded with rather more hope. During the past year most of the primary products of the East have enjoyed steady markets, and tea and rubber prices in particular showed substantial increases towards the end of the year.

Rice is in a special position, for although its price has fallen, to the disadvantage of producing countries like Burma and Thailand, the vast populations elsewhere in South-East Asia who depend upon it as a vital foodstuff have benefited.

With export earnings more assured, the economic outlook in the East has shown corresponding improvement. Japan, whose position a year ago was causing anxiety, has succeeded in restoring some measure of stability, and the Indian economy has made substantial progress. On the other hand, the situation in Indonesia continues to cause grave concern, and although the fighting in Indo-China is mercifully at an end, the task of rehabilitating the Vietnamese economy after so many years of war remains considerable.

The various development schemes which are intended to raise Asian living standards continue to make good progress and economic prospects in the East during the present year do not appear unfavourable.

SIGNS OF RELAXED TENSION

During the year under review there were signs that tension between the Atlantic countries and the Communist bloc was relaxing and that conditions were becoming more favourable to an expansion of international trade. The fighting in Vietnam was brought to an end almost at the moment when an extension of the conflict had become inevitable. The volcanic situation in Korea remained quiescent during the year and the People's Government of China displayed more willingness to restore normal diplomatic relations with the United Kingdom.

The conference at Geneva, although it propounded no settlement of the clash of ideologies in Asia, did at least demonstrate that diplomacy can be better conducted by plenipotentiaries than by comminatory broadcasters. The most significant, if most menacing, development during 1954 has been the shifting of the centre of gravity in world affairs from the Elbe to the Formosa Straits.

There can be no enduring progress anywhere until the antithesis in world politics has been moderated. The hope of a *modus vivendi* between the two major power groups in the modern world depends too much upon states of mind in high places.

In some of the eastern countries there persist political, social and economic problems which appear to be increasingly difficult to solve but in every land to which its establishment extends the Bank is still able to make important contributions to the prosperity of its hosts by facilitating the international exchange of goods and services. Because the Bank is peculiarly fitted and particularly well equipped to discharge this function it may be less exposed to nationalistic prejudice than other foreign enterprises engaged in purely domestic trade and industry in countries newly emancipated and over conscious of their independence.

ADJUSTMENT AND ADAPTATION

Since nationalism was awakened in Asia, and this occurred quite a long time ago, the oversea organization of the Bank has undergone a protracted process of adjustment and adaptation. This process has been accelerated since 1945 and we can now begin to discern what will be the ultimate form of the Bank's relations with the governments and peoples of the Eastern countries.

During the year the Court of Directors took a decision, which, from the Bank's point of view, was historic. For many years past Asian officers of the Bank have been promoted in increasing number to posts of higher responsibility but it has now been decided to admit Asians to the rank of sub-accountant in the service, a rank hitherto restricted to Europeans.

Over a wider sector of the oversea establishment there has been brought about equality of status between British and Asian officers of the Bank.

There are still problems connected with recruitment and training to solve but I believe that the step we have taken will secure for the Bank in years to come a service to which young men of courage, attainments and character drawn from the United Kingdom and from the new national states of the East, will be proud to belong and in which they will serve happily side by side.

COURT OF DIRECTORS AND GENERAL MANAGERS

Two years ago I intimated that Lord Colgrain, because of his advancing age, had found it necessary to retire from the Court. Lord Colgrain died after a short illness in November last, and it is fitting that I should again pay tribute to his character and to the statesmanship and qualities of leadership he displayed while presiding over the British Bankers' Association and the Committee of London Clearing Bankers during the war. Lord Colgrain was a member of the Court for 30 years, and we shall always hold his memory in honour and affection.

In previous statements and at the annual general meetings of the stockholders I have referred with gratitude and admiration to the services rendered to the Bank by its Chief General Manager. Early in January of this year the Court of Directors recorded their pride and satisfaction upon learning that Her Majesty the Queen had graciously signified her intention of conferring upon Mr. Cockburn the Order of Knighthood.

On January 15 Mr. Cockburn retired from the chief executive post to which he was appointed in 1940, and my colleagues and I were very happy to elect him to membership of the Court. The stockholders will be invited to confirm his election at the annual general meeting.

Mr. H. F. Morford, until recently Deputy Chief General Manager, has been appointed Chief General Manager and your Directors have every confidence in him as a worthy successor to Mr. Cockburn.

I should like to place on record our grateful thanks to the Staff wherever they may be, and whatever their rank, for their skill and loyal devotion to duty which so greatly helped us in the achievements once again of satisfactory results.

THE BANK'S BALANCE SHEET

As the result of an increase of approximately £17,000,000 over last year's figure the total of the Bank's Balance Sheet has once again exceeded £200,000,000. The increase, due in part to rises in world prices of tea, rubber, tin and other staple commodities indigenous to the countries in which the Bank operates, is also a heartening indication that we are more than holding our own in the face of competition and despite the protective trading and exchange restrictions, particularly in the field of import control and licensing, which the governments of the countries concerned have had occasion to impose or maintain.

PROFIT AND LOSS ACCOUNT

The net profits for the year amount to £723,147 an increase over those of last year of £29,349.

Difficult working conditions have persisted, but our Balance Sheet testifies to rather better conditions generally, in addition to which working costs which have been rising each year are at long last showing signs of greater stability.

We paid an interim dividend in October last of 7½%, less Income Tax, absorbing £144,375, an increase of ¼% over the interim dividend of the previous year, and it is now proposed that, out of the Balance now available, a final dividend of 7½%, less Income Tax, should be paid, costing £144,375, making the total distribution for 1954 15%, as compared with 14% in 1953.

We propose to repeat the allocations made in each of the past four years to the Pension Fund and Widows' and Orphans' Fund of £125,000 and £20,000 respectively. We have again applied £200,000 towards writing down Bank Premises and Furniture Account. It is proposed to transfer £100,000 to Contingencies Account, as compared with £75,000 last year, and to carry forward the slightly decreased balance of £392,910.

I am encouraged to conclude upon a note of restrained optimism, bearing in mind that periods of economic stability in the East have been relatively few during the past hundred years. For a long time the Bank was beset by recurring crises of confidence and unpredictable fluctuations in the world price of silver, but nowadays most of our difficulties arise from attempts to put into operation untried political and economic theories.

Notwithstanding the fragmentation of what were formerly unified trading areas of great extent into self-regarding national States, our branch organization has been able to cross the new frontiers and, by facilitating international trade to foster international understanding and goodwill.

THE CONSOLIDATED MINES SELECTION COMPANY LIMITED

MR. A. C. WILSON'S STATEMENT

The annual report for the year ended December 31, 1954, and the statement by the chairman, **Mr. A. C. Wilson**, have been circulated to stockholders.

The following are extracts from the chairman's statement:—

Markets have for most of the year remained very firm and we have had no difficulty in improving our cash position without recourse to stockholders. Whereas at December 31, 1953, we had a bank overdraft of £156,000, we now have £90,000 cash in hand or at call after paying out an interim dividend which absorbed £54,000. There has thus been an effective overall improvement in our strictly liquid position of £300,000.

Comparing the market value of our investments with the figure for last year there is an increase of £2,000,000. This is, of course, very satisfactory, but stockholders must remember that mining markets fluctuate from year to year and they should not therefore attach too much importance to this figure.

Your Directors considered the question of increasing the cash dividend distribution but decided that this year they should be reasonably conservative and keep the total at 2s. 6d., although the bonus of 1s. paid last year has been consolidated into this dividend which, as far as we can foresee, is one that we should be able to maintain. Indeed, if our long term plans develop as we hope and believe they will, it should be possible to improve on this rate in the future.

CAPITALIZATION OF RESERVES

In view of the strong position which has been built up, we feel that the stage has now been reached when we can make a small transfer from our reserves to capital. Your Board decided, therefore, to recommend that £45,000 of our reserves

should be capitalized and the resulting fully paid ordinary shares distributed to stockholders, against which £67,000 has been appropriated to reserve out of the profits for the year. In this way the total amount of our reserves will be maintained. We do not foresee difficulty in maintaining our 2s. 6d. dividend on the increased capital.

Whether it will be possible to repeat the issue and maintain the dividend in future years on the capital increased by any such issue must, of course, depend upon circumstances and for the time being it should be regarded only as a special distribution related to a period in which we have reaped substantial rewards from past restraint.

O.F.S. INTERESTS

Finally, I should like to make reference to developments in the Orange Free State goldfield. The results reported during the year by certain of the mines were extremely good and justify the high hopes borne for the companies concerned. We have for some time had a substantial part of our capital invested in the O.F.S. goldfield and, although we have already made very satisfactory profits out of certain of our participations, we have yet to receive any dividend revenue from present investments. Now that the mines in which we are interested are coming into production, the period of heavy capital outflow has passed and the monthly profits now being declared will soon be reflected in the distribution of dividends.

Copies of the Report and Accounts, which incorporate the full statement, are obtainable from the Company's office at 11 Old Jewry, London, E.C.2.

PETALING TIN

MR. J. T. CHAPPEL'S STATEMENT

The Twenty-ninth Annual General Meeting of Petaling Tin, Ltd., was held in Ipoh on March 4. **Mr. A. C. G. Pienne, M.I.Mech.E., M.I.M.M., M.I.E.E.**, presiding in the absence on leave of the Chairman, **Mr. J. T. Chappel, C.B.E., M.I.M.M.**

The following are extracts from the Chairman's statement circulated to the shareholders with the report and accounts for the year ended October 31, 1954:—

The Company's net profit for the year, after reserving \$510,450 (£59,552) for Taxation was \$1,303,922 (£152,124), the fall in the profit compared with the previous year being due to the reduced output consequent upon the No. 5 Dredge being inoperative for nine months and the lower average tin price.

Interim Dividends of 30% were declared and a final Dividend of 12½% is proposed. If this is approved the balance to be carried forward will be \$988,881 (£115,369) compared with \$993,959 (£115,961) in the previous year after a transfer of \$243,133 (£28,366) to Revenue Reserve thereby increasing it to \$5,000,000 (£583,333).

GENERAL MANAGERS' REPORT

It will be noted from the General Managers' Report that the pontoon of the No. 5 Dredge was launched at Seaport Estate on October 19, in the presence of His Excellency the High Commissioner, and good progress has subsequently been made in the erection of the superstructure and the installation of plant. A Sublease has recently been issued to the Company over the area selected for mining, and it is hoped that dredging operations will commence in April.

The alterations made to the No. 3 Dredge, in order to enable it to recover values below its normal maximum digging depth, have proved satisfactory, and it is now intended to rehabilitate the No. 4 Dredge and modify it in a similar manner so that it may also operate in an area previously dredged, where boring has proved appreciable values in depth.

Although the Security position has generally continued to improve in the Federation, the end of the Emergency, now in its seventh year, is not yet in sight, and there are no grounds for complacency or relaxation of precautions both with regard to the possibilities of direct attacks and the more insidious method of infiltration into the labour forces and the Trade Unions. I am sure shareholders would wish me to express our appreciation of the manner in which the Staff and labour force have continued to carry out their duties under difficult circumstances.

INTERNATIONAL TIN AGREEMENT

In my statement of last year I referred to the Resolution adopted at a meeting of the Federal Legislative Council in

February, 1954, requesting Her Majesty's Government to sign the International Tin Agreement on behalf of the Federation. In August, 1954, the Mining Industry was asked to express its views in a referendum as to whether or not it would oppose a proposal to reduce the ceiling price of the Buffer Stock to be formed under the terms of the Agreement from £880 to £840, should the Agreement be ratified and such a proposal be made by the French Government in the International Tin Council to be set up under the Agreement.

The majority of Malayan Producers were in favour of not opposing such a proposal, though it is a matter of grave concern to many of us in the Industry that we should have been asked to agree, or at any rate not to oppose, an amendment to the Agreement even before it has been ratified.

At the August meeting of the Federal Legislative Council it was unanimously agreed to request Her Majesty's Government to ratify the Agreement on behalf of the Federation. The present position is, however, uncertain, as sufficient countries to bring it into force have not yet ratified the Agreement. Meanwhile, the Federal Tin Control Advisory Committee under the chairmanship of the Honourable the Member for Natural Resources, consisting of six Officials, twenty representatives of the Industry and one representative of the Trade Union Council, has been considering arrangements for the domestic implementation of the Agreement.

At the November meeting of the Federal Legislative Council a White Paper setting out the principles agreed by this Committee was unanimously approved, and the Tin Control Ordinance, 1954, was taken through all stages. This Ordinance is an enabling measure authorizing the High Commissioner in Council to make regulations for the purpose of the implementation in the Federation of the provisions of the Agreement; it is understood these regulations are now in the process of being drafted.

CURRENT YEAR'S OUTLOOK

With the No. 6 Dredge operating in comparatively high grade virgin ground, No. 3 Dredge producing satisfactory outputs, and No. 5 Dredge resuming operations in April, there should be an appreciable increase in the overall output during the current year, provided production is not curtailed by the operation of the International Tin Agreement.

The Chairman announced the declaration of a first quarterly interim dividend of 12½%.

The Report and Accounts were adopted.



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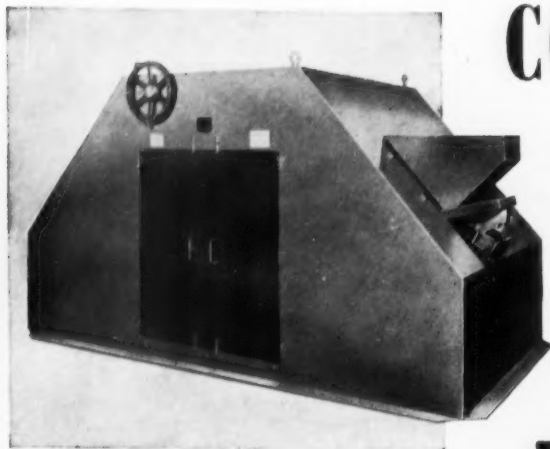
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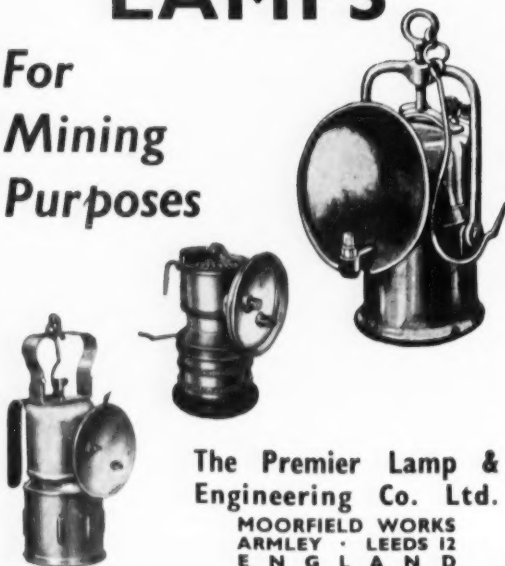


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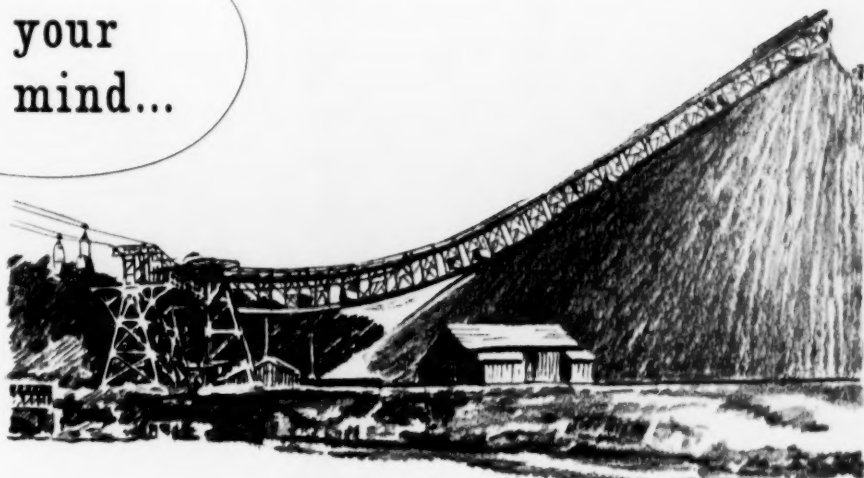
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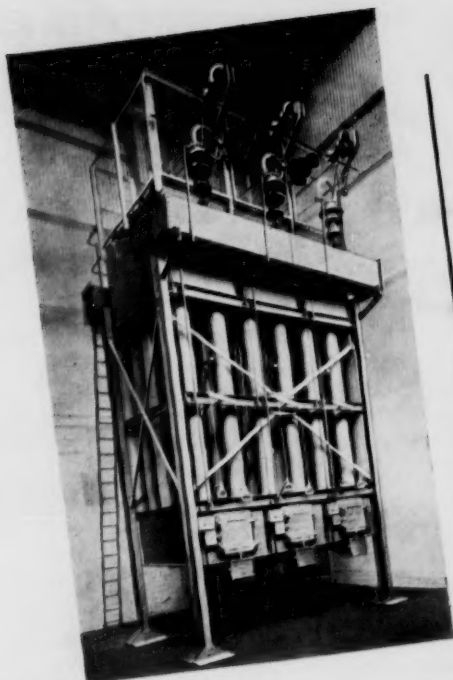
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